

Animal Genetics

Editor

R. L. Spooner

Volume 24
1993

Contents

Blackwell Scientific Publications
Oxford · London · Edinburgh · Boston · Melbourne
Berlin · Paris · Vienna

© 1993 International Society for Animal Genetics

Authorization to photocopy for internal or personal use or for the internal or personal use of specific clients is granted by the International Society for Animal Genetics for libraries and other users registered within the Copyright Clearance Center (CCC) Transactional Reporting Service, provided that the base fee of \$10.00 per copy is paid directly to CCC, 27 Congress Street, Salem, MA 01970, USA. This consent does not extend to other kinds of copying, such as copying for general distribution for advertising or promotional purposes, for creating new collective works or for resale. Special requests should be addressed to the Editor 0268-9146/93 \$10.00.

Published by Blackwell Scientific Publications Ltd
Osney Mead, Oxford OX2 0EL, UK
25 John Street, London WC1N 2BL, UK
23 Ainslie Place, Edinburgh EH3 6AJ, UK
Suite 500, 5th Floor, 238 Main Street, Cambridge, MA 02142, USA
54 University Street, Carlton, Victoria 3053, Australia
Düsseldorfer Strasse 38, D-10707 Berlin, Germany
1 rue de Lille, 75006 Paris, France
Feldgasse 13, A-1238 Vienna, Austria

ISSN 0268-9146

Typeset by R. D. Composition Ltd, Glasgow
Printed by The Devonshire Press, Torquay

VOLUME CONTENTS

Volume 24 Number 1 February 1993

- 1 Construction of a library of bovine genomic fragments enriched in CpG islands
F De Rubertis, S Comincini, P Leone, G Rogoni, L Ferretti
- 9 Type I interferon genes in cattle: restriction fragment length polymorphisms, gene numbers and physical organization on bovine chromosome 8
A M Ryan, J E Womack
- 17 Cloning and restriction fragment length polymorphism analysis of a cDNA for swine PIT-1, a gene controlling growth hormone expression
C K Tuggle, T-P Yu, J Helm, M F Rothschild
- 23 Somatic cell mapping of the bovine prion protein gene and restriction fragment length polymorphism studies in cattle and sheep
A M Ryan, J E Womack
- 27 Biochemical characterization of the bovine genetic κ -casein C and E variants
G Miranda, P Anglade, M F Mahé, G Erhardt
- 33 Short interspersed nuclear element (SINE) sequences of the *Bovidae*
J A Lenstra, J A F van Boxtel, K A Zwaagstra, M Schwerin
- 41 *BoLA-DIB*: species distribution, linkage with *DOB*, and Northern analysis
R T Stone, N E Muggli-Cockett
- 47 Use of isoelectric focusing to define major histocompatibility class I polymorphism in goats
I Joosten, G Ruff, M F Sanders, E J Hensen
- 53 Association between the bovine major histocompatibility complex and chronic posterior spinal paresis — a form of ankylosing spondylitis — in Holstein bulls
C A Park, H C Hines, D R Monke, W T Threlfall
- Short Communications
- 59 Clinal variation at aspartate aminotransferase-2 in spotted seatrout, *Cynoscion nebulosus* (Cuvier), inhabiting the north-western Gulf of Mexico
T L King, E G Zimmerman
- 63 Polymorphism of erythrocyte glucosephosphate isomerase in sheep
R Rasero, L Di Stasio, G P Berra
- 65 A new α_{S1} -casein allele in bovine milk and its occurrence in different breeds
G Erhardt
- 67 Restriction fragment length polymorphisms at the heat shock protein HSP70 gene(s) in pigs
M K Ruohonen-Lehto, M F Rothschild, R G Larson
- Molecular Genetic Markers
- 69 A highly polymorphic bovine microsatellite locus: BM2113
S L Sundsen, R T Stone, M D Bishop, S M Kappes, J W Keele, C W Beattie
Bsrl RFLP in the gene for the ovine B2C high-sulphur wool protein
G R Rogers, J G Hickford, R Bickerstaffe, J L Woods
- 70 A porcine polymorphic microsatellite locus (S0031)
J F Brown, A L Archibald
An EcoRI polymorphism at the ovine enolase 1 (ENO1) locus
G Schmahl, B Leyhe, S Hiendleder, R Wassmuth
- 71 *Apal* and *Cfol* polymorphisms in the porcine growth hormone gene
N J Larsen, V H Nielsen
Polymorphism in an A- and T-rich element in the β -haemoglobin locus in sheep
N J Wood, S H Phua, B P Davidson
- 72 Dinucleotide polymorphism at the bovine histamine H1 receptor locus
S S Moore, K Byrne
A polymorphic microsatellite at the *RYR1* locus in swine
R Bolt, P Vögeli, R Fries
- 73 ILSTS005: a polymorphic bovine microsatellite
L Brezinsky, S J Kemp, A J Teale
- ILSTS006: a polymorphic bovine microsatellite
L Brezinsky, S J Kemp, A J Teale
- 74 ILSTS008: a polymorphic bovine microsatellite
S J Kemp, L Brezinsky, A J Teale
Characterization of the bovine α_{S1} -casein gene C-allele, based on a *MaeIII* polymorphism
D Koczan, G Hobom, H-M Seyfert
- 75 Five polymorphic bovine microsatellites (ILSTS010–014)
L Brezinsky, S J Kemp, A J Teale
- 76 A *BglII* RFLP at the ovine locus for insulin-like growth factor 1 (IGF1)
J Demmer, S M Galloway
- 77 Instructions to authors
- 80 Manuscript submittal form

Volume 24 Number 2 April 1993

- 81 Single-strand conformation polymorphisms (SSCPs) detected in five bovine genes
H L Neiberger, A B Dietz, J E Womack
- 85 In situ hybridization mapping and restriction fragment length polymorphism analysis of the porcine albumin (ALB) and transferrin (TF) genes
B P Chowdhary, M Johansson, R Chaudhary, H Ellegren, F Gu, L Andersson, I Gustavsson
- 91 Growth hormone gene polymorphism associated with selection for milk fat production in lines of cattle
S Høj, M Fredholm, N J Larsen, V H Nielsen
- 97 Genetic polymorphism of the sixth component of complement (C6) in the pig
T Shibata, T Akita, T Abe
- 101 Linkage between amylase-1 locus and a major gene for milk fat content in cattle
L Andersson-Eklund, J Rendel
- 105 DNA fingerprint bands applied to linkage analysis with quantitative trait loci in chickens
Y Plotksy, A Cahner, A Haberfeld, U Lavi, S J Lamont, J Hillel
- 111 Mapping the bovine genome: methodological aspects and strategy
R Fries
- Short Communications
- 117 Determination of pig apolipoprotein B genotype by gene amplification and restriction fragment length polymorphism analysis
M E Kaiser, D N Nevin, S L Sturley, C Purcell, A D Attie

- 121 Isolation and mapping of polymorphic microsatellites in cattle
P Steffen, A Eggen, A B Dietz, J E Womack, G Stranzinger, R Fries
- 125 A polymorphism in the bovine gamma-S-crystallin gene revealed by allele-specific amplification
S J Kemp, J C Maillard, A J Teale
- 129 Localization of the porcine growth hormone gene to chromosome 12p1·2→p1·5
M Yerle, Y Lahbib-Mansais, P D Thomsen, J Gellin
- 133 An improved method for typing of plasma α_1 -protease inhibitor (PI1) variants in sheep
A Estomba, M Basaras, A Aguirre, A Vicario, B Jugo, L I Mazon
- 135 Kappa-casein polymorphisms among cattle breeds and bison herds
M A Cronin, N Cockett
- 148 Eight polymorphic bovine microsatellites
J Kaukinen, S-L Varvio
- 149 A polymorphic microsatellite (UWCA4) detected on bovine chromosome 21
H S Sun, M R Dentine, B W Kirkpatrick
- Detection of a four-allele single strand conformation polymorphism (SSCP) in the bovine prolactin gene 5' flank
G L Hart, J Bastiaansen, M R Dentine, B W Kirkpatrick
- 150 A three-allele *PstI* RFLP at the ovine locus for myosin I heavy chain-like protein (M1HC)
S H Phua, L J Collins, N J Wood, B P Davidson
- Dinucleotide polymorphism at the bovine calmodulin independent adenylyl cyclase locus
S S Moore, K Byrne
- 151 Society News

Molecular Genetic Markers

- 139 A *BamHI* polymorphism at the porcine crystallin γ locus
E Atac, D Shalhevet, D Krull, P Clamp, R Feltes, J Beever, L B Schook
- An *EcoRI* polymorphism at the porcine Enolase 1 (ENO1) locus
P Clamp, D Shalhevet, R Feltes, E Atac, L B Schook
- 140 A *HindIII* polymorphism at the porcine bone, liver, kidney alkaline phosphatase (*ALPL*) locus
D Shalhevet, D Krull, P Clamp, R Feltes, E Atac, L B Schook
- A *DraI* polymorphism at the porcine transforming growth factor β , 1 *TGF β 1* locus
R Feltes, P Clamp, D Shalhevet, E Atac, L B Schook
- 141 A *BamHI* polymorphism at the porcine interleukin-1 α (*IL1A*) locus
D Shalhevet, D Krull, R Feltes, P Clamp, E Atac, M Murtaugh, L B Schook
- A *BamHI* polymorphism at the porcine interleukin-1 β (*IL1B*) locus
R Feltes, D Krull, P Clamp, D Shalhevet, E Atac, M Murtaugh, L B Schook
- 142 A polymorphic microsatellite (UWCA1) detected on bovine chromosome 23
H S Sun, G L Hart, B W Kirkpatrick
- A low frequency *EcoRI*-RFLP at the ovine protamine 1 (PRM1) locus
S H Phua, L J Collins, N J Wood, B P Davidson, L R McNabb
- 143 *EcoRI* reveals a polymorphism at the ovine gelsolin (GSN) locus
S H Phua, L M Cambridge, N J Wood
- A *PstI* RFLP at the ovine elastin (ELN) locus
S H Phua, N J Wood, B P Davidson
- 144 Diallelic single-strand conformation polymorphism in the bovine insulin-like growth factor-1 third intron
B W Kirkpatrick
- Three-allele single strand conformation polymorphism (SSCP) detected in the bovine type 1 plasminogen activator inhibitor gene
H L Neiberger, J E Womack
- 145 Ovine microsatellites at the OarFCB11, OarFCB128, OarFCB193, OarFCB266 and OarFCB304 loci
F C Buchanan, A M Crawford
- 146 Ovine dinucleotide repeat polymorphism at the VIAS-S5 locus
C R Primmer, M E Matthews
- A *MspI* RFLP at the ovine protein kinase C beta locus
J E Broom, J M Penty
- 147 Bovine dinucleotide repeat polymorphism at the ARO26 locus
A Avraham, M Band, O Yoffe, M Shani, M Ron
- Bovine dinucleotide repeat polymorphism at the ARO28 locus
A Avraham, M Band, O Yoffe, M Shani, M Ron
- 155 Double-strand DNA conformation polymorphisms as a source of highly polymorphic genetic markers
B W Kirkpatrick, B M Huff, E Casas-Carrillo
- 163 Characterization of porcine polymorphic microsatellite loci
W Coppieters, A Van de Weghe, L Peelman, A Depicker, A Van Zeveren, Y Bouquet
- 171 Unequivocal determination of sire allele origin for multiallelic microsatellites when only the sire and progeny are genotyped
M Ron, M Band, A Wyler, J I Weller
- 177 Influence of different *B*-complex recombinants on the outcome of Rous sarcomas in chickens
P A Aeed, W E Briles, R M Zsigray, W M Collins
- 183 Sequence variation in D-loop mtDNA of cow lineages selected for high and low maternal effects on milk production
M Ron, O Yoffe, J I Weller
- 187 DNA sequence analysis of serologically detected ELA class II haplotypes at the equine DQ β locus
G Szalai, E Bailey, H Gerber, S Lazary
- Short Communications**
- 191 Common swine leucocyte antigen (SLA) haplotypes in NIH and Sinclair miniature swine have similar effects on the expression of an inherited melanoma
R G Tissot, C W Beattie, M S Amoss Jr, J D Williams, J Schumacher
- 195 Isolation and characterization of variable (GT)_n repetitive sequences from Atlantic salmon, *Salmo salar* L.
A. Slettan, I Olsaker, Ø Lie
- 199 Detection of genome specific monomorphic loci in *Bos taurus* and *Bubalus bubalis* with oligodeoxyribonucleotide probe
S Ali, Gauri, S Bala
- 203 Haemoglobin I: a new β -globin chain variant found in sheep of Italian breeds
L Manca, A Di Luccia, E Pieragostini, S Naitana, B Masala
- Report**
- 205 1st Pig Gene Mapping Workshop (PGM1), 7 August 1992, Interlaken, Switzerland
L Andersson, A L Archibald, J Gellin, L B Schook
- Molecular Genetic Markers**
- 217 A *BglII* polymorphism at the porcine γ -glutamyl transpeptidase (GGT) locus
P Zambonelli, R Davoli, D Bigi, E Farnetti, V Russo
- A *BglII* RFLP at the ovine MHC class II DRA locus
A P Escayg, G W Montgomery, J G Hickford, D W Bullock

- 218 *MspI* RFLP in the gene for a Type I intermediate filament wool keratin
G R Rogers, J G H Hickford, R Bickerstaffe
A BamHI polymorphism in ovine glycine/tyrosine-rich type II (KRTAP6) keratin sequences
Y M Parsons, D W Cooper, L R Piper, B C Powell
- 219 Ovine microsatellites at the OarAE16, OarAE54, OarAE57, OarAE119 and OarAE129 loci
J M Penty, H M Henry, A J Ede, A M Crawford
- 220 The myogenic factor 5 (*MYF5*) locus in sheep carries a rare *EcoRI* RFLP
S H Phua, N J Wood
**PstI* enzyme reveals a low frequency polymorphism at the rhodopsin (*RHO*) locus in sheep*
S H Phua, L M Cambridge, N J Wood
- 221 A new bovine dinucleotide repeat microsatellite: microsatellite INRA 18
K Goudarzi, R Ciampolini, D Vaiman, H Leveziel
A new bovine dinucleotide repeat microsatellite: microsatellite INRA 30
R Ciampolini, K Goudarzi, D Vaiman, H Leveziel
- 222 Ovine microsatellites at the OarHH35, OarHH41, OarHH44, OarHH47 and OarHH64 loci
H M Henry, J M Penty, C A Pierson, A M Crawford
- 223 Ovine microsatellites at the OarVH98, OarVH110, OarVH116, OarVH117 and OarVH130 loci
V Hanrahan, A J Ede, C A Pierson, D F Hill
- 224 Ovine microsatellites at the OarVH34, OarVH41, OarVH58, OarVH61 and OarVH72 loci
C A Pierson, V Hanrahan, A J Ede, A M Crawford
- 283 Mapping of susceptibility to Marek's disease within the major histocompatibility (*B*) complex by refined typing of White Leghorn chickens
B G Hepkema, J J Blankert, G A A Albers, M G J Tilanus, E Egberts, A J van der Zijpp, E J Hensen
- Short Communications
- 289 Isolation and characterization of microsatellites from the canine genome
N G Holmes, C S Mellersh, S J Humphreys, M M Binns, A Holliman, R Curtis, J Sampson
- 293 Cloning of a polymorphic canine genetic marker which maps to human chromosome 9
B Hershfield, G Chader, G Aguirre
- 297 The sex-determining region Y (SRY) gene is mapped to p12-p13 of the Y chromosome in pig (*Sus scrofa domestica*) by *in situ* hybridization
H Yang, R Fries, G Stranzinger
- 301 Linkage between the loci for serum albumin and vitamin D binding protein (GC) in sheep
G Erhardt, H Simianer
- 305 A new, partially deficient transferrin variant in the pig
D Čížová, A Stratil, E Müller, S Čepica
- 307 Localization of the tumour protein, TP53, on porcine chromosome 12q12-q14
G Rettenberger, C Klett, H Hameister
- 311 A fast and highly sensitive method for detecting freemartinism in bovine twins using immunomagnetic beads and Y-specific PCR primers
I Olsaker, C B Jørgensen, A L Hellemann, P D Thomsen, Ø Lie
- 315 An additional locus (*PI4*) in the protease inhibitor (*PI*) gene cluster of pigs
D Čížová, E Gabříšová, A Stratil, J Hojný
- 319 The duplicated gene copy of the ovine growth hormone gene contains a *PvuII* polymorphism in the second intron
E Gootwine, J A Sise, J M Penty, G W Montgomery
- 323 Silent blood chimaerism in a mare confirmed by DNA marker analysis of hair bulbs
A T Bowring, M L Stott, L Bickel
- 325 Characterization of the 3' untranslated region of bovine parathyroid hormone gene in N'Dama and Boran cattle
M Agaba, S J Kemp
- Molecular Genetic Markers
- 327 Dinucleotide repeat polymorphism at the bovine HUJ614 locus
A Shalom, M Soller, A Friedmann
Dinucleotide repeat polymorphism at the bovine HUJ616 locus
A Shalom, M Soller, A Friedmann
- 328 Dinucleotide repeat polymorphism at the bovine HUJ625 locus
A Shalom, M Soller, A Friedmann
TaqI and HaeIII RFLP at the locus encoding the chicken homologue of CD28
N Burnstead, J R Young, C Tregaskes
- 329 An *Xba* RFLP at the ovine basic fibroblast growth factor locus (*FGFB*)
J M Penty, G W Montgomery
A dinucleotide repeat polymorphism at the adenylate cyclase activating polypeptide locus in sheep
N J Wood, S H Phua
- 330 A *TaqI* RFLP at the porcine low density lipoprotein receptor (*LDLR*) locus
A M Davis, B A White, M B Wheeler
*An *RsaI* RFLP at the porcine protein kinase C epsilon polypeptide (*PRKCE*) locus*
M R Allen, M B Wheeler

- 331 An EcoRV RFLP at the porcine chromogranin A locus (*CHGA*)
S Couperwhite, A L Archibald
 An XbaI RFLP at the porcine growth hormone receptor locus (*GHR*)
S Couperwhite, A L Archibald
- 332 Canine tetranucleotide repeat polymorphism at the VIAS-D10 locus
C R Primmer, M E Matthews
- 332 Society News
- Volume 24 Number 5 October 1993**
- 333 A linkage group on pig chromosome 4 comprising the loci for blood group L, GBA, ATP1B1 and three microsatellites
L Marklund, A K Winterö, P D Thomsen, M Johansson, M Fredholm, U Gustafsson, L Andersson
- 339 Polymerase chain reaction analysis of mitochondrial DNA polymorphism in N'Dama and Zebu cattle
R Suzuki, S J Kemp, A J Teale
- 345 Two polymorphic microsatellites in a coding segment of the canine androgen receptor gene
H Shibusawa, DJ Nonneman, TH-M Huang, VK Ganjam, FA Mann
- 349 Designation by restriction fragment length polymorphism of major histocompatibility complex class IV haplotypes in meat-type chickens
E Landesman, Z Uni, E D Heller
- 355 Sequence-tagged microsatellite sites as markers in chicken reference and resource populations
H Khatib, E Genislav, L B Crittenden, N Burnstead, M Soller
- 363 A panel of bovine, ovine and caprine polymorphic microsatellites
S J Kemp, L Brezinsky, A J Teale
- 367 Abundant (A)_n{(T)_n} mononucleotide repeats in the pig genome: linkage mapping of the porcine APOB, FSA, ALOX12, PEPN and RLN loci
H Ellegren
- 373 Bovine casein haplotypes: number, frequencies and applicability as genetic markers
S Lien, S Rogne
- 377 Restriction fragment length polymorphism of DQB and DRB class II genes of the ovine major histocompatibility complex
F Grain, M-C Nain, M-P Labonne, F Lantier, P Lechopier, L Gebuhrer, J Asso, J Maddox, H Betuel
- Short Communications
- 385 Assessment of DNA fingerprinting for determining genetic diversity in sheep populations
IF Hermans, C A Morris, G K Chambers, N R Towers, T W Jordan
- 389 A high recombination frequency within the chicken major histocompatibility (B) complex
B G Hepkema, M G J Tilanus, H J Blankert, G A A Albers, M C Grosfeld-Stulemeyer, E J Hensen
- 393 Evidence for linkage between K88ab, K88ac intestinal receptors to *Escherichia coli* and transferrin loci in pigs
G Guérin, Y Duval-Ifrah, M Bonneau, M Bertaud, P Guillaume, L Ollivier
- 397 *TaqI* RFLP at the bovine *IgE* gene locus
A L Burn, R A Clarke, K J Beh
 Mononucleotide repeat polymorphism at the *GGY* locus in chicken
H Khatib, M Soller
- 398 *TagI* RFLP at the locus encoding the chicken homologue of CD8α
N Burnstead, J R Young, C Tregaskes
- 399 Society News
- Volume 24 Number 6 December 1993**
- 401 Biochemical characterization of the feline AB blood group system
M Griot-Wenk, P Pahlsson, A Chisholm-Chait, P F Spitalnik, S L Spitalnik, U Giger
- 409 A novel molecular fingerprint probe based on the endogenous avian retroviral element (EAV) of chickens
B F Benkel, J S Gavora
- 415 Mapping of MYF5, C1R, MYHL, TPI1, IAPP, A2MR and RNR onto sheep chromosome 3q
TE Broad, DJ Burkin, C Jones, PE Lewis, H A Ansari, PD Pearce
- 421 High lysozyme activity in a Norwegian bovine family co-segregates with a restriction fragment length polymorphism
I Olsaker, C M Mejell, A Sørensen, Ø Lie
- Short Communications
- 427 1D-IEF analysis of BoLA class I expression using allo-antisera reveals additional complexity
S W K Al-Murrani, E J Glass, J L Williams, R A Oliver
- 433 Assignment of five polymorphic ovine microsatellites to bovine syntenic groups
A B Dietz, J E Womack, P A Swarbrick, A M Crawford
- 437 Equine plasminogen polymorphism: allelic frequencies in 23 breeds
A T Bowling, M C T Penedo, L Gordon, K Bell
- 439 Genetic polymorphism of transferrin (TF) and the haemoglobin alpha chain (HBA) in the brown hare (*Lepus europaeus*)
G B Hartl, N Ferrand
- 441 Highly polymorphic microsatellite markers in poultry
R P M A Crooijmans, A J A van Kampen, J J van der Poel, M A M Groenen
- 445 A new lipoprotein allotype *Lpr³* and allele *Lpr^{1,3}* in the pig
J Hojny, A Janik, J Schröffel Jr
- 447 Author and subject indexes to volume 24

